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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,705	12/13/2004	Hirofumi Masuda	1600-0157PUS1	9097
2292 7590 08/20/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER BERNSHTEYN, MICHAEL	
			ART UNIT 1713	PAPER NUMBER
			NOTIFICATION DATE 08/20/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/517,705

Applicant(s)

MASUDA ET AL.

Examiner

Michael Bernshteyn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3 and 5-22 is/are pending in the application.
- 4a) Of the above claim(s) 10-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 5-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1,3 and 5-22 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office Action follows a response filed on May 29, 2007. No claims have been amended, cancelled or added.
2. Applicant's arguments, see remarks, filed on May 29, 2007, with respect to the rejection(s) of claim(s) 1, 3 and 5-9 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Linke et al. (U. S. Patent 3,981,987).
3. This is the 2nd non-final rejection.
4. Claims 1, 3 and 5-9 are active.

Claim Rejections - 35 USC § 103

5. The text of this section of Title 35 U.S.C. not included in this action can be found in a prior Office Action.
6. Claims 1, 3, 5, 7 and 8 are rejected under U.S.C. 103(a) being unpatentable as obvious over Linke et al. (U. S. patent 3,981,987).

With regard to the limitation of instant claims 1, 3, 5, 7 and 8, Linke discloses a copolymer of a) from **20 to 95% by weight** of at least one compound selected from the group consisting of vinyl esters of aliphatic carboxylic acids of 2 to 20 carbon atoms and **esters of acrylic and methacrylic acid** with aliphatic alcohols of 1 to 6 carbon atoms, and b) from **80 to 5% by weight** of at least one compound selected from the group consisting of the half-esters of ethylenically unsaturated dibasic carboxylic acids of 4 to

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5 carbon atoms with aliphatic alcohols of 6 to 24 carbon atoms (claim 1, col. 8, line 62 through col. 9, line 5).

Linke exemplifies a copolymer of 37.5 parts of **methyl methacrylate**, 32.5 parts of **methyl acrylate**, 5 parts of dimethylaminoethyl methacrylate and 25 parts of the **cyclohexyl half-ester of maleic acid** (Example 3, col. 5, lines 52-57).

Linke discloses that suitable half-esters (b) are, above all, half-esters of maleic acid, fumaric acid, citraconic acid, mesaconic acid and itaconic acid with alcohols such as, in general, cyclohexanol or fatty alcohols of 6 to 24 carbon atoms, preferably of 10 to 20 carbon atoms (col. 2, lines 61-65).

With regard to the limitation of instant claims 1 and 3, Linke does not disclose that units of monomer (A) selected from the group consisting of monocyclic fumarate and monocyclic maleate.

However, Linke's cyclohexyl half-ester of maleic acid and instantly claimed monocyclic maleate have very closed chemical structure. Even assuming that the claims are not anticipated by the reference, it would have been obvious to one of ordinary skill in the art to make the acrylic rubber polymer composition having the above mentioned compounds because it appears that the reference generically embrace the claimed subject matter and the person of ordinary skill in the art would have expected all embodiments of the reference to work. Applicants have not demonstrated that the differences, if any, between the claimed subject matter and the subject matter of the prior art examples give rise to unexpected products.

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7. Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable as obvious over Linke et al. (U. S. Patent 3,981,987) in view of Moriyama et al. (U.S. Patent Application Publication 2001/0005742).

With regard to the limitation of instant claims 6 and 9, Linke does not disclose that the acrylic rubber has a carboxyl group content in the range of 5×10^{-4} to 4×10^{-1} per 100 g of rubber

Moriyama discloses a butenedioic acid monoalkyl-copolymerized acrylic elastomer containing 0.1-30% by mole of butenedioic acid monoalkyl ester on the basis of carboxyl groups copolymerized in the acrylic elastomer or its cross-linkable composition (abstract). Butenedioic acid monoalkyl-copolymerized acrylic elastomer includes, for example, copolymers of at least one of alkyl acrylate and alkoxyalkyl acrylate with monoalkyl ester of butanedioic acid such as maleic acid, fumaric acid, etc. Alkyl acrylate includes, for example alkyl acrylates with alkyl groups having 1-8 carbon atoms, such as methyl acrylate, ethyl acrylate, etc. Alkoxyalkyl acrylate includes, for example alkoxyalkyl acrylates with alkoxyalkyl groups of 2-8 carbon atoms, such as methoxymethyl acrylate, 2-methoxyethyl acrylate, etc. (page 1, [0010], [0011]).

With regard to the limitation of instant claim 6, Moriyama discloses that an amount of carboxyl groups in the copolymer can be determined by subjecting thoroughly water-washed, reprecipitated, water-washed and dried copolymer to neutralization titration to obtain an acid value, followed by calculation [0020]. Acid value of washed copolymer is 4.5-5.1 mg/g, which is within the claimed range (table 1, [0047]).

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With regard to the limitation of instant claim 9, Moriyama discloses that the resulting acrylic elastomer has a Mooney viscosity ML_{1+4} (100°C) of about 10 to about 100, preferably about **20 to about 80**, which is within the claimed range [0017].

Both references are analogous art because they are from the same field of endeavor concerning copolymers obtained by copolymerization of acrylic or methacrylic acid esters with esters of ethylenically unsaturated dibasic carboxylic acids.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the amount of carboxyl groups in the copolymer and a Mooney viscosity ML_{1+4} (100°C) in the claimed range as taught by Moriyama in Linke's copolymers in with reasonable expectation of success, and thus to arrive at the subject matter of instant claim 1 and dependable claims 2-4.

Thus, the combination of Linke and Moriyama claims 1, 3 and 5-9 *prima facie* obvious in view of absent of unexpected results commensurate in scope of claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Bernshteyn whose telephone number is 571-272-2411. The examiner can normally be reached on M-F 8-5:30.

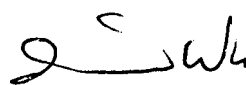
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Bernshteyn
Examiner
Art Unit 1713

MB
08/14/2007


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